U7860-1

BUSINESS IN NEBRASKA

May 1985
Vol. 40 No. 488

Prepared by the Bureau of Business Research, 200 College of Business Administration, University of Nebraska, Lincoln, NE 68588-0406, 402 472-2334

GROSS FARM PRODUCT: NEBRASKA AND THE PLAINS STATES

Without doubt, agriculture is an important industry to the economy of the plains region comprising the states of Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. Consequently, a measure of agriculture's contribution to total gross regional product is interesting and valuable to individuals and businesses involved either directly or indirectly with agriculture.

This article presents a detailed analysis of gross farm product for states of the plains region. Dollar values of components required to calculate gross farm product are outlined for each state in the region. Techniques used to calculate gross farm product are presented in balance sheet form. Individual state contributions to U.S. and regional gross farm product are presented.

Nebraska agriculture's contribution to total gross state product is discussed and illustrated. Historical data for gross farm and nonfarm product are presented in both tabular and graphic formats.

Although the primary objective of this article is to analyze gross farm product, it is important that economic relationships between the farm and nonfarm sectors be recognized.

GROSS STATE PRODUCT

Gross state product, defined as the dollar value of all goods and services produced by a state's economy in one year, is the regional analog of gross national product. Like its national counterpart, gross state product is used to monitor economic growth and change. Since nothing exists at the state level comparable to the national income and products accounts, gross product originating for nonfarm industries is estimated indirectly by applying ratio allocation techniques to national statistics.[1] Unlike nonfarm output, gross farm product can be directly calculated using state farm income statistics published annually by the U.S. Department of Agriculture. Delays in receiving state data, however, result in a one-year lag in reporting gross farm product.

Table 1 displays components and steps required to calculate current dollar (nominal) and constant dollar (real) Nebraska gross farm product. Gross farm product is the difference between total farm output and intermediate production expenses. Farm output excludes government payments and rent to non-operator landlords; intermediate production expenses exclude hired labor expenses. Net farm income is another measure that is frequently associated with farm output. Gross farm product and net farm income should not be equated, however, as they are different measures.

Real gross farm product is expressed in 1972 dollars, and reflects changes over time in prices received for farm products and production costs. Real gross product is used more often than its nominal counterpart to monitor economic growth of an industrial sector, farm or nonfarm. The state index of prices received for all farm products is used to deflate farm output, and the U.S. index of prices paid by farmers for production expenses is used to adjust intermediate production expenses. These components are combined as indicated in Table 1 to obtain real gross farm product. An overall deflator for the farm sector can be obtained by dividing nominal gross farm product by real gross farm product.

PLAINS STATES GROSS FARM PRODUCT

The plains region includes the states of Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota, and is often referred to as "America's heartland." The region houses a sizeable livestock operation and produces a significant proportion of U.S. food and feed grains.

(continued on page 2)

Table 1
1983 Nebraska Gross Farm Product

	millions of current dollars
Gross farm income	7,141.2
Plus net change in farm inventories	-336.3
Less government payments	762.3
Less rent paid to non-operator landlords	212.5
Equals total farm output (1)	5,830.1
Current operating expenses	4,619.6
Less hired labor expenses	244.7
Equals intermediate production expenses (2)	4,374.9
Gross farm product (1) minus (2)	1,455.2
	millions of constant dollars
Total farm output	3,052.4
Less intermediate production expenses	1,743.0
Equals gross farm product	1,309.4

Source: *Economic Indicators of the Farm Sector, State Income and Balance Sheet Statistics, 1983*, U.S. Department of Agriculture publication and Bureau of Business Research calculations

[1] J.W. Kendrick and C.L. Jaycox, "The Concept and Estimation of Gross State Product," *Southern Economic Journal*, 32 (1965), 153-168.

Table 2
Derivation of 1983 Gross Farm Product for the Plains States
Millions of Current Dollars

	Iowa	Kansas	Minnesota	Missouri	Nebraska	North Dakota	South Dakota	Total
Gross Farm Income	11,093.5	6,439.1	7,492.6	4,784.2	7,141.2	3,501.5	3,061.4	43,513.5
(minus)								
Government Payments	899.5	598.2	610.9	236.9	762.3	578.8	267.1	3,953.7
(plus)								
Net Change in Farm Inventories	-2,091.8	-61.2	-640.3	-726.3	-336.3	-206.8	-42.5	-4,105.2
(minus)								
Current Operating Expenses	5,920.0	4,124.7	3,863.4	2,615.3	4,619.6	1,490.2	1,667.7	24,300.9
(plus)								
Hired Labor Expenses	276.3	259.9	317.5	172.7	244.7	126.1	104.6	1,501.8
(minus)								
Rent to Non-operator Landlords	453.6	166.8	224.6	133.9	212.5	216.9	117.9	1,526.2
(equals)								
GROSS FARM PRODUCT	2,004.9	1,748.1	2,470.9	1,244.5	1,455.2	1,134.9	1,070.8	11,129.3

Source: see Table 1

(continued from page 1)

From 1980 through 1983, the plains region accounted for approximately one-fifth of total U.S. gross farm product. Averaged over the period, contributions to U.S. gross farm product by state ranged from 1.6 percent for South Dakota to 5.0 percent for Iowa.

Calculation of 1983 gross farm product for the plains region is presented in Table 2, where the balance sheet indicates the relationships of components in the calculation. The method of calculation in Table 2 is different than the method of Table 1, as it circumvents calculating total farm output and intermediate production expenses separately. Nominal gross farm product is identical, however, regardless of which method is used. In 1983 gross farm product for the plains region was $11.1 billion, or 18 percent of U.S. gross farm product. A severe drought and the large magnitude of government payments contributed to a significant decline in 1983 gross farm product.

Government payments to plains states farmers were unusually high in 1983 due to the now defunct payment-in-kind (PIK) program. Government payments to all states totaled $9.29 billion in 1983. The $3.95 billion in government payments to plains states farmers accounted for 43 percent of total government payments in 1983. Iowa received almost $900 million in farm subsidies and other government payments; Nebraska followed with $762 million, a figure 175 percent greater than the previous high of $278 million reported in 1982.

Government payments to Nebraska farmers are disaggregated below to show the different programs that received funding.

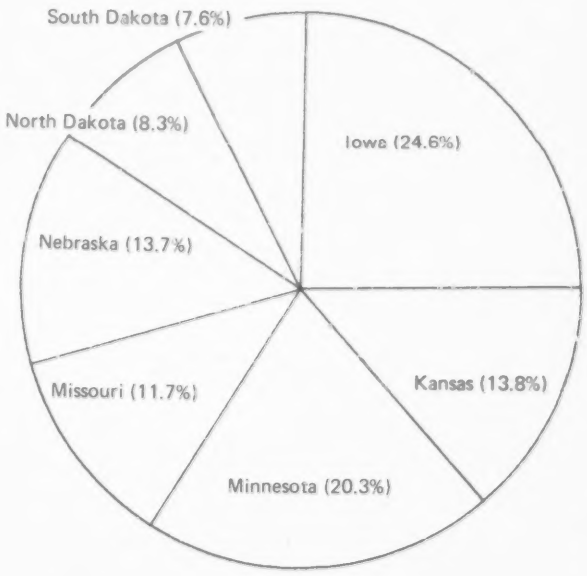
Feed grain and wheat programs	$220.1 million
Conservation and wool act programs	$7.1 million
Milk indemnity, PIK, rural clean water, clean lakes, forest incentive, water bank, emergency livestock fee, and extended storage programs[2]	$535.1 million
TOTAL	$762.3 million

Government payments are considered by many as incentives and safeguards for agriculture, and would be reduced or eliminated under the proposed farm program.

Gross farm product for the plains region is presented in Table 3 for the period 1980-1983. Averaged over the four-year period to smooth fluctuations that occur on a year-to-year basis, the percentage composition by state of regional gross farm product is illustrated in Figure 1.

(continued on page 3)

FIGURE 1
Percentage Comparison of Plain States Gross Farm Product
1980-1983 average



[2]The U.S. Department of Agriculture lumped these programs under the 'miscellaneous' category with one cost figure

Table 3
Plains States Gross Farm Product 1980-1983
Millions of Current Dollars

	1980	1981	1982	1983
Iowa	3,655.5	5,140.5	3,861.9	2,004.9
Kansas	1,874.6	2,185.3	2,384.5	1,748.1
Minnesota	3,013.4	3,542.4	3,093.1	2,470.9
Missouri	1,589.6	2,258.1	1,863.4	1,244.5
Nebraska	1,633.3	2,835.6	2,249.4	1,455.2
North Dakota	955.5	1,629.3	1,228.9	1,134.9
South Dakota	986.4	1,269.8	1,189.7	1,070.8
Plains States	13,708.3	18,861.0	15,870.9	11,129.3
Percent of U.S. Gross Farm Product	20.2	23.3	21.1	18.1

Source: see Table 1

(continued from page 2)

A significant increase in gross farm product for the plains region was reported in 1981, followed by declines in 1982 and 1983, matching the nationwide trend. Iowa's gross farm product fell 61 percent from 1981 to 1983, while Nebraska and Missouri dropped 49 percent and 45 percent, respectively. The smallest decrease in gross farm product was 16 percent for South Dakota. As a whole, the plains region experienced a 41 percent dip in gross farm product over the same period. The plains region's percentage share of U.S. gross farm product followed the same trend as dollar value, increasing to over 23 percent in 1981 and declining to less than 19 percent in 1983.

The outlook for 1984 and 1985 is for improvement in regional gross farm product. A gain in farm marketings, positive net change in farm inventories, and a decline in government payments should contribute to an increase in gross farm product. The big factor is the trade-off between cash farm marketings and production expenses, which could be unfavorable if commodity prices remain depressed.

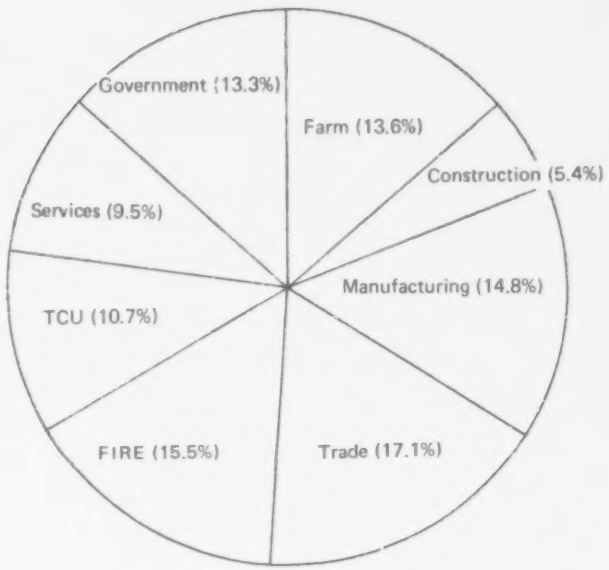
NEBRASKA GROSS FARM PRODUCT

Total gross state product is an aggregate measure of economic activity generated by the various industrial sectors of a state's economy. Gross product originating by sector permits a comparison of contributions to total gross state product. Such comparisons have often been criticized since the methodology for estimating gross product by sector largely ignores the economic interrelationship of the sectors. Industrial sectors of a state economy are not mutually exclusive economically, but the overlaps are difficult, if not impossible, to determine. Recognizing the shortcomings of the accounting system, average percentage composition of real Nebraska gross state product for the years 1960 through 1983 is illustrated in Figure 2. The average percentage share for gross farm product was 13.6 percent, ranging from a low of 9.4 percent in 1974 to a high of 17.0 percent in 1981.

Historical data for Nebraska gross farm and nonfarm product in nominal and real (1972 dollars) terms are presented in Table 4. From 1960 through 1983, compound annual growth rates for real

(continued on page 6)

FIGURE 2
Percentage Composition of Real Gross State Product
1960-1983 average



TCU = Transportation, Communication, and Utilities
FIRE = Finance, Insurance, and Real Estate

Table 4
Gross Farm and Nonfarm Product
Millions of Dollars

	Farm		Nonfarm	
Year	Nominal	Real	Nominal	Real
1960	595.9	886.1	3,097.3	4,630.9
1961	461.1	679.0	3,246.5	4,790.8
1962	570.9	787.3	3,461.9	5,014.7
1963	539.5	821.3	3,599.7	5,137.4
1964	419.4	720.9	3,841.7	5,344.6
1965	603.1	860.4	4,009.0	5,463.4
1966	744.1	907.4	4,301.3	5,664.9
1967	702.7	994.6	4,629.2	5,857.3
1968	603.0	869.2	5,043.6	6,115.5
1969	824.0	997.5	5,532.9	6,381.0
1970	767.3	970.4	5,957.0	6,496.9
1971	988.0	1,206.8	6,433.3	6,687.6
1972	1,103.4	1,103.4	7,068.6	7,068.6
1973	1,789.8	962.8	7,874.6	7,541.5
1974	1,404.2	764.6	8,692.1	7,675.0
1975	1,825.7	1,190.3	9,643.3	7,794.9
1976	1,392.2	1,166.0	10,841.0	8,277.1
1977	1,431.5	1,456.2	11,954.7	8,567.9
1978	1,658.0	1,269.6	13,420.2	8,995.6
1979	2,102.1	1,263.8	14,880.0	9,323.1
1980	1,633.3	1,146.9	16,063.3	9,219.4
1981	2,835.6	1,864.0	17,535.1	9,264.0
1982	2,249.4	1,738.2	18,296.1	9,041.1
1983	1,455.2	1,309.4	19,646.1	9,210.2

Source: Bureau of Business Research calculations

Review and Outlook

Data problems abbreviate this month's Review and Outlook. Information from the United States Department of Agriculture on Nebraska cash receipts was not available and may not be available for several months. Retail sales data from the Nebraska Department of Revenue were not properly allocated and are not available for January 1985.

Nebraska's nonagriculture sector was up 3.2 percent compared with one year previous. On a month-to-month basis, the Bureau of Business Research's net physical volume index rose slightly more than 2.0 percent. Construction, manufacturing, and distributive trade recorded increases on a month-to-month basis.

The construction index stood at 104.2 compared with one year previous. Most construction activity is centered in Lincoln and Omaha, although there are exceptions outside the two metropolitan areas.

The net physical volume index for manufacturing grew in January 1985. Although the index has increased since the recession, employment in Nebraska's manufacturing sector remains about 10,000 below the peak of 100,000 established in 1979-1980. The manufacturing sector has improved since the economic upswing in 1983, but it is still well below peak levels in terms of total employment.

Nebraska's distributive trade sector, a large sector that includes wholesale and retail trade, finance, insurance, and real estate, banking, and services, recorded a small gain in January 1985 compared with the previous month. This sector continues to expand slowly. The service sector of the nation and of Nebraska continues to be an important force behind economic expansion--the economic base is broadening because of the growth of services exports. The export of computer programs or services is as important as that of agriculture commodities or manufactured goods.

(continued on page 5)

Notes for Tables 1 and 2: (1) The "distributive" indicator represents a composite of wholesale and retail trade; transportation, communication and utilities; finance, insurance, and real estate; and selected services. (2) The "physical volume" indicator and its components represent the dollar volume indicator and its components adjusted for price changes using appropriate price indexes

ECONOMIC INDICATORS: NEBRASKA AND UNITED STATES

1. CHANGE FROM PREVIOUS YEAR

January 1985	Current Month as Percent of Same Month Previous Year		1985 to Date as Percent of 1984 to Date	
Indicator	Nebraska	U.S.	Nebraska	U.S.
Dollar Volume	NA	NA	NA	NA
Agricultural	NA	NA	NA	NA
Nonagricultural	106.9	106.5	106.9	106.5
Construction	104.2	115.7	104.2	115.7
Manufacturing	105.3	104.6	105.3	104.6
Distributive	105.9	106.5	105.9	106.5
Government	114.8	106.4	114.8	106.4
Physical Volume	NA	NA	NA	NA
Agricultural	NA	NA	NA	NA
Nonagricultural	103.2	103.0	103.2	103.0
Construction	100.0	111.1	100.0	111.1
Manufacturing	104.2	103.3	104.2	103.3
Distributive	102.2	102.8	102.2	102.8
Government	105.8	101.1	105.8	101.1

2. CHANGE FROM 1967

Indicator	Percent of 1967 Average	
	Nebraska	U.S.
Dollar Volume	NA	NA
Agricultural	NA	NA
Nonagricultural	373.6	439.4
Construction	269.1	432.6
Manufacturing	375.5	329.3
Distributive	378.4	500.1
Government	411.3	444.7
Physical Volume	NA	NA
Agricultural	NA	NA
Nonagricultural	126.9	146.8
Construction	76.4	122.9
Manufacturing	150.5	129.3
Distributive	119.7	158.2
Government	151.8	149.4

PRICE INDEXES

January 1985	Index (1967 = 100)	Percent of Same Month Last Year	Year to Date as Percent of Same Period Last Year*
Consumer Prices	316.1	103.6	103.6
Commodity component	282.7	102.1	102.1
Wholesale Prices	309.8	100.6	100.6
Agricultural Prices			
United States	249.0	93.3	93.3
Nebraska	253.0	95.1	95.1

*Using arithmetic average of monthly indexes.
Sources: Consumer and Wholesale Prices: U.S. Bureau of Labor Statistics; Agricultural Prices: U.S. Department of Agriculture.

January 1985	CITY BUSINESS INDICATORS		
	Percent of Same Month a Year Ago		
The State and Its Trading Centers	Employment[1]	Building Activity[2]	Power Consumption[3]
The State	104.6	113.4	94.8
Alliance	101.7	120.5	88.8*
Beatrice	101.7	66.0	94.2
Bellevue	108.0	74.2	89.1
Blair	104.0	117.2	99.1*
Broken Bow	98.0	568.6	93.5
Chadron	108.5	45.3	90.4
Columbus	102.5	112.8	95.8
Fairbury	98.3	200.7	99.8
Falls City	102.0	163.6	91.7
Fremont	102.7	137.8	108.6*
Grand Island	104.7	153.9	93.4
Hastings	104.7	282.0	89.7
Holdrege	100.2	26.9	84.7
Kearney	115.9	114.3	89.0
Lexington	105.4	124.1	94.2
Lincoln	106.3	100.6	97.1
McCook	108.4	391.6	86.3
Nebraska City	104.0	288.6	82.8
Norfolk	105.4	100.3	101.9
North Platte	101.1	144.6	86.9
Omaha	103.1	129.1	98.0
Scottsbluff/Gering	97.6	30.8	88.7
Seward	107.2	128.6	96.7
Sidney	105.7	36.9	103.0
So. Sioux City	101.5	92.6	99.1
York	105.8	125.4	112.5

[1] As a proxy for city employment, total employment for the county in which a city is located is used.
[2] Building Activity is the value of building permits issued as spread over an appropriate time period of construction. The U.S. Department of Commerce Composite Construction Cost Index is used to adjust construction activity for price changes.
[3] Power Consumption is a combined index of consumption of electricity and natural gas except in cases marked * for which only one is used.

Source: Compilation by Bureau of Business Research from reports of private and public agencies.

(continued from page 4)

The outlook for the Nebraska economy is related to the national economy over the next 12 to 18 months. As the national economy expands or contracts, it impacts Nebraska. If the economy grows, the railroads move an additional volume of freight, manufacturers ship additional items, and service firms such as insurance and banking increase their exports.

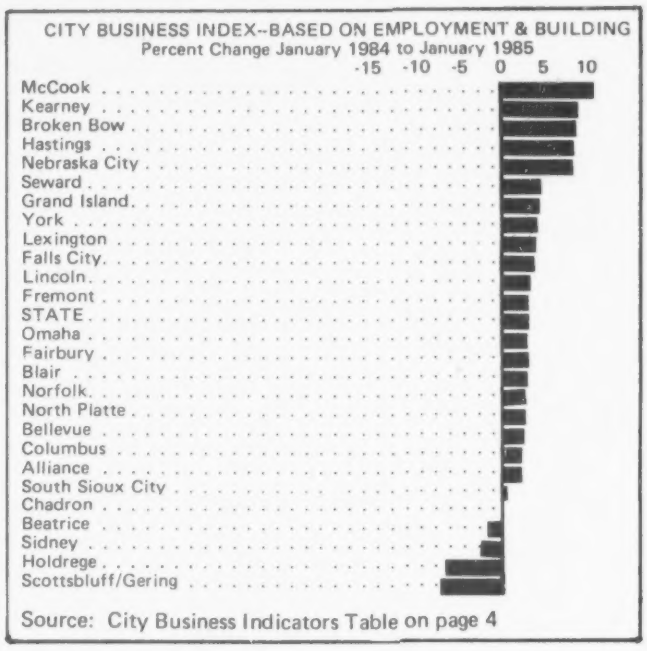
The national economy is expanding slowly at an annual rate of less than 3.0 percent. Continued growth is expected throughout 1986 because the Federal Reserve Board will enlarge the money supply at a sufficient rate to maintain growth. Household and business credit needs are not likely to strain the demand for money, which could lead to falling interest rates if the Federal Reserve continues to permit monetary growth.

Lower interest rates will stimulate economic growth in the state and elsewhere. Lower interest rates will help hard pressed farmers and ranchers and other individuals outside the agriculture sector.

The outlook for inflation is for continued moderate price increases. The annual rate of increase of medical costs has slowed considerably. Lower interest rates will favorably impact financing costs. Inflation should average 3.0 to 5.0 percent over the next 12 months.

The Nebraska economy faces some interesting challenges over the next few years. If the objective is to maximize growth, private and public money should be invested in the nonagriculture sector. The prospects of limited exports of grain mean that grain prices will likely increase less rapidly than all other prices. The demand for beef continues to stagnate--when meat is consumed, it is more likely today to be poultry and fish than five years ago. This will limit gains in livestock prices. The effort to diversify the state's economy can be enhanced by channeling public and private investment into areas which are expanding more rapidly than agriculture where the prospects for a higher rate of return are better than in the farm sector.

DONALD E. PURSELL



Source: City Business Indicators Table on page 4

The University of Nebraska-Lincoln College of Law
And College of Business Administration Present
The Second Annual Midwest Conference on Business:

OUTLOOK '85 CONFERENCE

Former President Gerald R. Ford will deliver the keynote address at the Second Annual Midwest Conference on Business: OUTLOOK '85 in Omaha on May 30.

Other national, regional, and state experts will advise the mid-America business community on economic trends, opportunities, and resources.

Speakers will include John Block, Secretary of Agriculture; Nebraska Governor Bob Kerrey; Dr. Clayton Yeutter, President and Chief Executive Officer of the Chicago Mercantile Exchange; Joel Friedman, Director of Strategic Management at Arthur Anderson and Company; Harold W. Andersen, President of the Omaha World Herald Company; and Dr. Donald E. Pursell, Director of the University of Nebraska-Lincoln Bureau of Business Research.

In addition to the major addresses, workshops on specific economic topics will be conducted.

The conference is presented by the University of Nebraska College of Business Administration and College of Law, and the University of Nebraska-Lincoln Department of Conferences and Institutes. The event is scheduled for Thursday, May 30, 1985 at the Red Lion Inn in Omaha from 9:00 a.m. to 4:30 p.m.. Financial sponsors of the seminar are Arthur Andersen and Company; Mammel, Schropp, Swartzbaugh, Engler and Jones, Inc.; Erickson and Sederstrom, P.C.; and the First National Bank of Omaha.

The advance registration fee is $60 ($75 after May 15) for the full day's program, including lunch.

For information and registration, contact:

Dr. Robert Mortenson
Department of Conferences and Institutes
University of Nebraska-Lincoln
205 Nebraska Center
Lincoln, NE 68583-0929

telephone: 402/472-2844

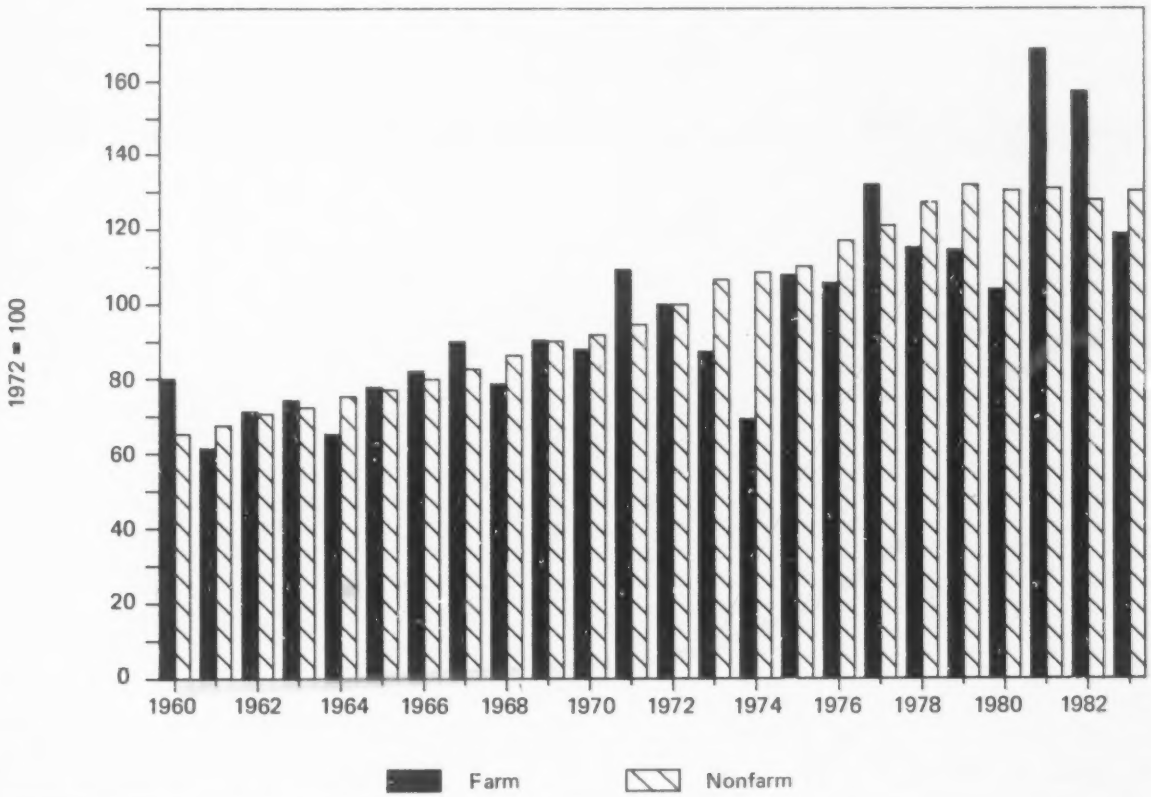
(continued from page 3)

gross farm and nonfarm product were 1.7 percent and 3.0 percent respectively. Gross farm product has exhibited a pattern of wide fluctuations, reflecting the volatility of the farm sector, while the growth of real gross nonfarm product has been relatively stable. The only declines in real gross nonfarm income occurred in 1980 and 1982, corresponding to the last two recessions. During the last year of available data (1983), real gross farm product decreased 24.7 percent, while real gross nonfarm income rose almost 2 percent. Other states in the plains region exhibited comparable growth rates and patterns in gross farm and nonfarm product.

Figure 3 illustrates the growth of real Nebraska gross farm and nonfarm product over the 1960-1983 period. Gross product has been converted to index numbers (1972=100) to better illustrate and compare the growth patterns for the farm and nonfarm components.

CHARLES L. BARE

FIGURE 3
Nebraska Farm and Nonfarm Gross Product
1960-1983



BUSINESS IN NEBRASKA
PREPARED BY BUREAU OF BUSINESS RESEARCH
Member Association for University Business & Economic Research

Business in Nebraska is issued monthly as a public service and mailed free within the State upon request to 200 CBA University of Nebraska–Lincoln, Lincoln, NE 68588-0406. Material herein may be reproduced with proper credit. Address correction requested.

Vol. 40 No. 488 May 1985

UNIVERSITY OF NEBRASKA–LINCOLN
Martin A Massengale, *Chancellor*
COLLEGE OF BUSINESS ADMINISTRATION
Gary Schwendiman, *Dean*

BUREAU OF BUSINESS RESEARCH

Donald E. Pursell, *Director*
Charles L. Bare, *Research Associate*
Jerome A. Deichert, *Research Associate*
Douglas O. Love, *Research Associate*
Margo Young, *Editorial Assistant*

The University of Nebraska–Lincoln does not discriminate in its academic, admission, or employment programs and abides by all federal regulations pertaining to same.

Non-Profit
Organization
U. S POSTAGE
PAID
Lincoln, Nebr.
Permit No. 46

CONGRESSIONAL INFO SERVIC270238
SRI BR
4520 EAST-WEST HWY
BETHESDA, MD 20814